

**Notice of Allowability**

Application No.

10/624,812

Examiner

Kamran Afshar, 571-272-7796

Applicant(s)

MARINIER, PAUL

Art Unit

2681

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/31/2005.
2. ☒ The allowed claim(s) is/are 1-5, 7-11 and 16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). ✓
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 07/27/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Steven J. Gelman Registration No. 41,034 on 9/29/2005.

The application has been amended as follows:

#### In the Claims:

1. (Currently amended) A method for increasing cellular system capacity, comprising the steps of:

receiving a signal in a time slot in a frequency band;

transmitting a signal simultaneously with said received signal in the same time slot and frequency band; [[and]]

using an adaptive self-interference canceller to reduce the radio frequency self-interference created by receiving and transmitting signals in the time slot; and

using a circulator, the circulator being connected between an antenna, a receiver, and a transmitter.

2. (Currently amended) The method according to claim 1, ~~further comprising the step of using a circulator, the circulator being connected between an antenna, a receiver, and a transmitter, whereby~~ wherein the circulator acts to reduce radio frequency self-interference by isolating the signal flow between the antenna and the receiver or between the transmitter and the antenna.

3. (Original) The method according to claim 1, further comprising the step of using separate antennas for receiving and transmitting.

4. (Original) The method according to claim 1, further comprising the step of using an adaptive antenna.

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5. (Currently amended) A system for increasing cellular system capacity, comprising:  
an antenna;  
a receiver section connected to said antenna, said receiver section receiving a signal;  
a transmitter section connected to said antenna, said transmitter section transmitting a signal;  
[[and]]  
an adaptive self-interference canceller connected between said receiver section and said transmitter section, said adaptive self-interference canceller reducing radio frequency self-interference created when said receiver section receives a signal and said transmitter section simultaneously transmits a signal in the same time slot and the same frequency band; and  
a circulator connected between said antenna, said receiver section, and said transmitter section.

6. (Canceled)

7. (Original) The system according to claim 5, wherein said antenna comprises an adaptive antenna.

8. (Original) The system according to claim 5, wherein said antenna comprises a single antenna for receiving and transmitting signals.

9. (Original) The system according to claim 5, wherein said antenna comprises an antenna array for receiving and transmitting signals.

10. (Original) The system according to claim 5, wherein said antenna comprises a first antenna for receiving signals and a second antenna for transmitting signals.

11. (Original) The system according to claim 5, wherein said antenna comprises a first antenna array for receiving signals and a second antenna array for transmitting signals.

12. - 15. (Canceled)

16. (Currently amended) The method according to claim [[12]] 1, ~~further comprising the step of using an adaptive self-interference canceller, whereby~~ wherein the canceller acts to reduce baseband self-interference by subtracting the self-interference from the rest of a received signal.

17. - 20. (Canceled)

***Allowable Subject Matter***

1. Claims 1-5, 7-11 & 16 are allowed.

The following is an examiner's statement of reasons for allowance: 1-5, 7-11 & 16.

With respect to claim 1, the prior art of record fails to disclose or render obvious that the steps of: receiving a signal in a time slot in a frequency band; transmitting a signal simultaneously with said received signal in the same time slot and frequency band; using an adaptive self-interference canceller to reduce the radio frequency self-interference created by receiving and transmitting signals in the time slot; and using a circulator, the circulator being connected between an antenna, a receiver, and a transmitter.

With respect to claim 5, the prior art of record fails to disclose or render obvious that an adaptive self-interference canceller connected between the receiver section and said transmitter section, the adaptive self-interference canceller reducing radio frequency self-interference created when the receiver section receives a signal and the transmitter section simultaneously transmits a signal in the same time slot and the same frequency band; and a circulator connected between the antenna, the receiver section, and the transmitter section

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Rittle (U.S. Pub. No.: 2003/0002449 A1), which discloses Method and system for data packet collision avoidance in a wireless communication system.

- b) Ziera (U.S. Pub. No.: 2004/0092232 A1), which discloses Method and system for determining correct escape mechanisms and controlling interference in third generation wireless systems.

- c) Ranta (U.S. 6,233,229 B1), which discloses Method of allocating frequency bands to different cells, and TDMA cellular radio system.

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d) Caldwell (U.S. Pub. No.: 2002/0122393 A1), which discloses Antenna diversity in a wireless local area network .

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Feild, Joseph** can be reached @ (571) 272-4090. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Kamran Afshar**

  
**JOSEPH FEILD**  
**SUPERVISORY PATENT EXAMINER**